SANTA CRUZ BIOTECHNOLOGY, INC.

# D4DR (2B9): sc-136169

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

Members of the G protein-coupled receptor family are distinguished by their slow transmitting response to ligand binding. These seven-transmembrane proteins include the adrenergic, serotonin and dopamine receptors. The effect of the signaling molecule can be excitatory or inhibitory, depending on the type of receptor to which it binds. β-adrenergic receptor binds to adrenaline and activates adenylyl cyclase, while $\alpha_2$-adrenergic receptor binds to adrenaline and inhibits adenylyl cyclase. The dopamine receptors are divided into two classes, D1 and D2, which differ in their functional characteristics in that D1 receptors stimulate adenylyl cyclase, while D2 receptors inhibit adenylyl cyclase activity. Five different subtypes of dopamine receptor have been described to date. D1DR and D5DR belong to the D1 subclass, while D2DR, D3DR and D4DR belong to the D2 subclass of dopamine receptors.

## CHROMOSOMAL LOCATION

Genetic locus: DRD4 (human) mapping to 11p15.5; Drd4 (mouse) mapping to 7 F5.

## SOURCE

D4DR (2B9) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 176-185 of human origin.

## PRODUCT

Each vial contains 200 µg IgG kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

D4DR (2B9) is available conjugated to agarose (sc-136169 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-136169 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-136169 PE), fluorescein (sc-136169 FITC), Alexa Fluor® 488 (sc-136169 AF488), Alexa Fluor® 546 (sc-136169 AF546), Alexa Fluor® 594 (sc-136169 AF594) or Alexa Fluor® 647 (sc-136169 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-136169 AF680) or Alexa Fluor® 790 (sc-136169 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

D4DR (2B9) is recommended for detection of D4DR of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for D4DR siRNA (h): sc-41932, D4DR siRNA (m): sc-41933, D4DR shRNA Plasmid (h): sc-41932-SH, D4DR shRNA Plasmid (m): sc-41933-SH, D4DR shRNA (h) Lentiviral Particles: sc-41932-V and D4DR shRNA (m) Lentiviral Particles: sc-41933-V.

Molecular Weight of D4DR: 48 kDa.

Positive Controls: rat brain extract: sc-2392, human eye extract: sc-364223 or human brain extract: sc-364375.

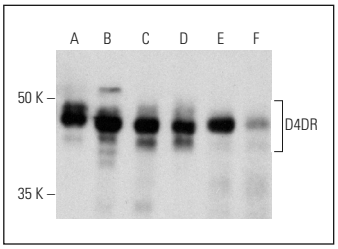
## RESEARCH USE

For research use only, not for use in diagnostic procedures.

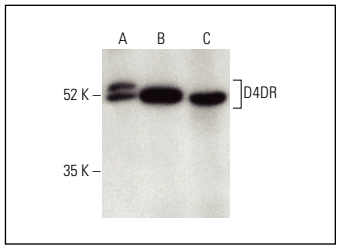
## STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## DATA




D4DR (2B9): sc-136169. Western blot analysis of D4DR expression in H4 (**A**), HUV-EC-C (**B**), RAW 264.7 (**C**), EOC 20 (**D**), C6 (**E**) and RPE-J (**F**) whole cell lysates.




D4DR (2B9): sc-136169. Western blot analysis of D4DR expression in human eye (**A**), human brain (**B**) and rat brain (**C**) tissue extracts. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

## SELECT PRODUCT CITATIONS


1. Yuen, E.Y., et al. 2011. Cellular mechanisms for dopamine D4 receptor-induced homeostatic regulation of α-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid (AMPA) receptors. J. Biol. Chem. 286: 24957-24965.
2. Bavithra, S., et al. 2012. Polychlorinated biphenyl (PCBs)-induced oxidative stress plays a critical role on cerebellar dopaminergic receptor expression: ameliorative role of quercetin. Neurotox. Res. 21: 149-159.
3. Selvakumar, K., et al. 2013. Impact of quercetin on PCBs (Aroclor-1254)-induced impairment of dopaminergic receptors expression in hippocampus of adult male Wistar rats. Biomed. Prev. Nutr. 3: 42-52.
4. Wen, Y.T., et al. 2019. A novel multi-target small molecule, LCC-09, inhibits stemness and therapy-resistant phenotypes of glioblastoma cells by increasing miR-34a and deregulating the DRD4/Akt/mTOR signaling axis. Cancers 11: 1442.
5. Ji, M.H., et al. 2020. Neural network disturbance in the medial prefrontal cortex might contribute to cognitive impairments induced by neuroinflammation. Brain Behav. Immun. 89: 133-144.
6. Liu, Y., et al. 2021. Dopamine receptor-mediated binding and cellular uptake of polydopamine-coated nanoparticles. ACS Nano 15: 13871-13890.
7. Vo, V.T.A., et al. 2022. Iron commensalism of mesenchymal glioblastoma promotes ferroptosis susceptibility upon dopamine treatment. Commun. Biol. 5: 593.
8. Rosas-Cruz, A., et al. 2022. DRD1 and DRD4 are differentially expressed in breast tumors and breast cancer stem cells: pharmacological implications. Transl. Cancer Res. 11: 3941-3950.


## PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.